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(54) Title: INHIBITOR OF OSTEOCLAST PRECURSOR FORMATION

(57) Abstract: This invention relates to a polypeptide factor which is able to inhibit the formation of osteoclasts. In particular, the invention relates to a factor which inhibits the differentiation of haematopoietic precursor cells into mononucleate osteoclast precursors. In a preferred form of the invention, the factor is a type (II) membrane polypeptide expressed on the osteoblast cell surface, which we have designated osteoclast inhibitory lectin (OCIL). Nucleic acids encoding the polypeptide factor, polypeptides, and antibodies to the polypeptide are disclosed and claimed. The factor is useful in the treatment of conditions associated with abnormalities of bone resorption.

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<212> DNA

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INTERNATIONAL SEARCH REPORT

 International application No.
PCT/AU00/00864
A. CLASSIFICATION OF SUBJECT MATTER
 Int. Cl. ⁷: C12N 15/12, 15/11; C12Q 1/68; C07K 14/475, 16/18; A61K 38/18, G01N 33/68.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

WORLD PATENT INDEX (WPAT) AND CHEMICAL ABSTRACTS (CA) KEYWORDS (KW) - SEE ELECTRONIC DATABASE BOX BELOW.

 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 Medline (ML) Kw Genbank, Genpept, EMBL, PIR and Dgene (Derwent)- sequences (See Electronic Database Box Below).

 Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 WPAT, CA, ML: KW "osteoclast? inhibit?"; "osteoprotegerin and osteoblast"; Genbank, Genpept, EMBL, Dgene:
 Sequences as defined in the claims (eg seq id nos. 2, 4, 7-16, 18-56).
C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Genbank accession no. AF121352 (published 15 June 1999) -	1-13, 32, 33 and 35. SEQ ID NOS:2-17, 19, 22-24, 28, 29, 32, 33, 36-39 and 54.
P, X	Genbank accession no. AF192526 (published 1 November 1999) -	1-4, 32, 33 and 35. SEQ ID NOS:13 and 15.
P, X	Genbank accession no. AF133299 (published 1 January 2000) -	1-4, 32, 33 and 35. SEQ ID NOS:43-47, 55 and 56.

☒ Further documents are listed in the continuation of Box C ☒ See patent family annex

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 6 September 2000	Date of mailing of the international search report 15 SEP 2000
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929	Authorized officer J H CHAN Telephone No : (02) 6283 2340

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU00/00864

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Genpept accession no. AAD22055 (published 15 June 1999)	14-18. SEQ ID NOS: 49.
X	WO 9828423 A (BOARD OF REGENTS, THE UNIVERSITY OF TEXAS SYSTEM) 2 July 1998. See pages 10-16 and the examples. ✓	1-3.
X	AU 702557 (46773/96) B (SNOW BRAND MILK PRODUCTS CO. LTD.) 11 September 1996. See pages 3-11 and the examples.. ✓	1-3.
X	AU 718458 (38661/97) B (SNOW BRAND MILK PRODUCTS CO. LTD.) 11 May 1998. See pages 6-7 and the examples. ✓	1-3.
A	WO 97/23614 A (AMGEN INC.) 3 July 1997. ✓	
A	Endocrine Review 20 no. 3 pages 345-357 (1999) Suda T. <i>et al</i> "Modulation of osteoclast differentiation and function by the new members of the Tumor Necrosis Factor Receptor and ligands families".	
A	Life Sciences volume 65 no 11 pages 1087-1102 (1999) Greenfield E M <i>et al</i> "Minireview: Regulation of osteoclast activity".	

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/AU00/00864

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member			
WO	9828423	AU	59015/98	EP	951546	US	5985832
AU	702557	WO	9626217	EP	816380	FI	973402
		NO	973801	CA	2213469	CN	1175956
		HU	9900422				
AU	718458	WO	9807840	EP	874045	FI	980853
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		TR	970550	US	6015938		
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